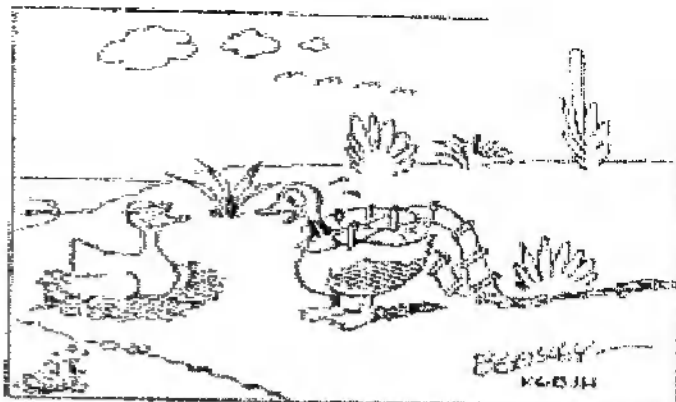


WIDSTATE AMATEUR RADIO CLUB

MARC

Ham Radio News from Central Indiana

Volume X No. 4

April 1994

Upgrades: VE Testing March 19, 1994

Ron Atkins	Greenwood	NC Tech
Frank Bathory WD9DWQ	North Vernon	General
Brian Bell	Indianapolis	NC Tech
Steven Cole	Indianapolis	NC Tech
Daryl Dezam	Camby	NC Tech
Brent Drake N9QKN	Shelbyville	Tech
Kenneth Fuller	Indianapolis	Tech
Stephen Gardner	Indianapolis	NC Tech
Mark Holden	Columbus	NC Tech
Larry Intermill KA9RCP	Greenfield	General
Gregory Lacy	Columbus	NC Tech
Bruce McClary KA9RWW	Indianapolis *	Tech
Maynard Payne N9VPH	Shelbyville	Tech
Harry Pray	Westport	NC Tech
George Small	Greenwood	NC Tech
Dean Streitmeier N9VDS	Indianapolis *	General
Robert Turner KA9PAZ	Plainfield *	Advanced
Joshua Wilson	Mooreville *	NC Tech
Timothy Woods	Indianapolis	NC Tech

* indicates member of Mid-State



Spotters class

Over thirty hams and members of the public attended the National Weather Service weather spotter class last Friday in Franklin. The two hour training session was held in the Johnson County Emergency Operations Center.

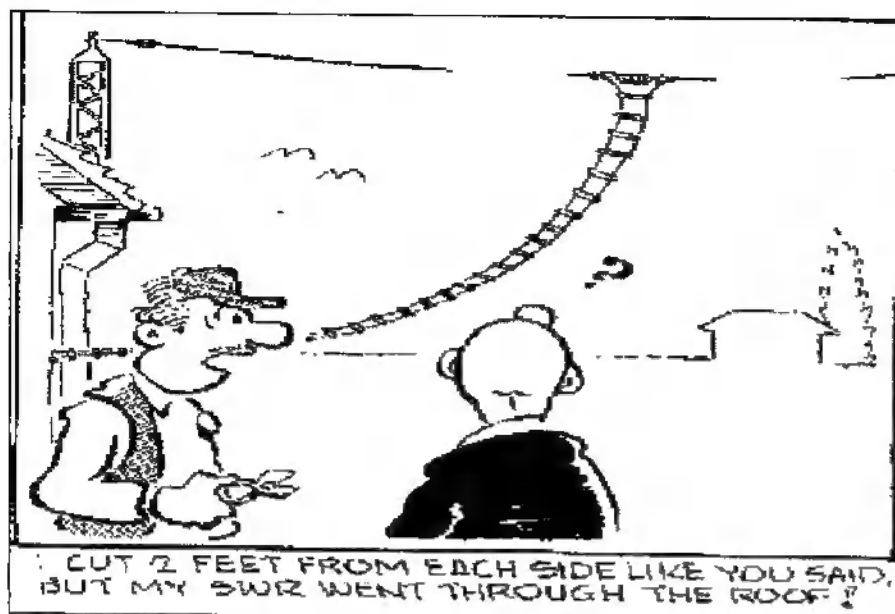
The spotters were shown slides and video tape of various severe weather clouds, the type of clouds that develop tornadoes. Meteorologist Dave Tucek explained the difference between a shelf cloud, an anvil cloud and a wall cloud.

His video tapes showed examples of how quickly tornadoes can develop out of these thunderstorms. He said the key elements to watch for and report are rotation in a cloud, 1/2 inch or greater sized hail, and winds that exceed fifty miles per hour. We also need to be alert for persistent heavy rains that may cause flash flooding.

Following the ninety minute training session each participant had to answer a ten question test to qualify for the official SKYWARN spotter certification. Those certificates will be mailed out in the coming weeks.

If you missed the Spotters Class:

According to Johnson County RACES director Joe Vergara KA9ZPA, another weather spotter training class may be held for those who could not make it to the April 8th meeting. Columbus also has one April 14th.



The long wire antenna

Question: I keep hearing people talk about how great a longwire antenna is, but I don't know how long one should be. How long should I make it?

Answer: Long enough to reach the station you are trying to contact! Well, honestly, the first thing you need to know is that you shouldn't even attempt a longwire antenna unless you have some sort of matching device, such as an antenna tuner.

Of course, a longwire is not a longwire unless it is longer than one wavelength at the operating frequency. So, for the 20 meter band, a longwire antenna would need to be at least 67 feet long. Here's the formula:

$$(492(N-0.05))/f \text{ Mhz}$$

N = number of half waves.
Example: For a frequency of 14.288: We need at least two half waves (which is one whole

wave), so take 2, subtract 0.05. We get 1.95, then multiply that by 492 to get 959.4, and divide by 14.288 to get 67.14725 or rounded off to 67.15 feet.

from April 94 World Radio

Novice class

By the calendar, spring has sprung (what does the calendar know), and the Midstates Amateur Radio Club Novice class is beginning to wind down. We started with about a dozen students, and even though that count is down to about 6 with two weeks left, things are going well.

Ron Atkins passed his No-code Technician test at the last meeting, and he, along with several others, will be testing at the next VE session in Franklin.

Everyone in class has found that 5 words per minute is not simple, but have been working hard towards passing both the written and code elements. See you at the meeting.

- Dave Reneau KF9SZ

from the April 94 World Radio

Scam alert!

An article in the April QST warns amateurs that "A commercial company is sending notices in the mail to hams whose Amateur Radio licenses are about to expire, offering to renew the hams' licenses for a \$5 fee". This is something you can do yourself, for the cost of a stamp!

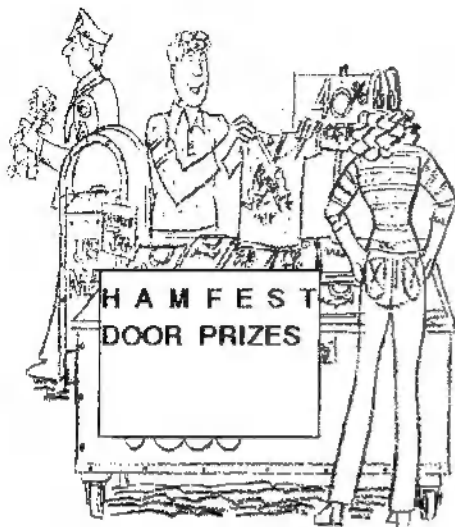
The ARRL is about to undertake the same project, but with no fee involved. League members will receive a notice about 90 days before their license expiration date, along with an FCC Form 610 and an envelope addressed to the FCC in Gettysburg. Simple!

Tate family

News of the Tate family..do you know how many members of the Tate family belong to the club? Well, there is old man Dic Tate who wants to run everything, while uncle Ro Tate tries to change everything. Their sister Agi Tate stirs up plenty of trouble, with help from her husband, Irri Tate.

Whenever new projects are suggested, Hesi Tate and Vege Tate want to wait until next time. Then there is Imi Tate, who wants our club to be like all the others. Devas Tate provides the voice of doom while Poten Tate wants to be the big shot.

Not all the members of the Tate family are bad. Facili Tate is quite helpful in club matters, and a happy member is Felici Tate, while cousins Cogi Tate and Medi Tate always think things over and lend a helpful, steady hand. Then, of course, there is the black sheep, Ampu Tate, who has completely cut himself off from the club.



Are you going to Dayton?

By Jack Parker NT9J



"If you build it, they will come!" That line, borrowed from the baseball movie, "Field of Dreams", best describes the annual pilgrimage to the greatest ham radio event in the world! It's like the first rite of Spring.

Each year, during the last weekend of April, thousands of hams will gather in a small sports arena in Dayton, Ohio searching for their dreams. Dreams that are filled with visions of radios, antennas and electronic paraphernalia.

If you are a novice to the Dayton Hamfest here are a few suggestions to make your trip to the "land of Oz" more enjoyable. First, if you plan on picking up any great used gear bargains, you must arrive early Friday morning. All of the good stuff goes fast. And don't forget: Ohio is one hour ahead of the Hoosier state.

Wear comfortable shoes. Visiting all of the outdoor flea market will add another five miles of treadwear to those new Reeboks. Always eat a good breakfast enroute to Dayton. It's best to stop

halfway there. The closer you get, the larger the crowds, the longer the wait for service.

When you arrive, tear off the prize entry part of your ticket and drop it in the prize barrel. You have a 30,000-1 chance of winning the grand prize, a new ham radio! Expect long lines just getting to the entry barrel.

Veteran hamfest goers will usually adhere to protocol and butt in line saving precious minutes in the early going for browsing the manufacturers midway. Be sure to check the TV monitors each hour for messages and your chance to win a great door prize.

Depending on the local forecast, I recommend carrying an umbrella, raincoat and sun block. A spring weekend in Ohio can bring rain, snow, blistering sun and occasional tornadoes. You can reduce the weight of your weather gear by sticking a large trash bag in your pocket. It makes a great raincoat. And if you don't need it, the hamfest committee can always use an extra trash bag to pick up

all the litter that hams leave behind.

Carrying an HT so you can keep track of your friends doesn't always work. The reason is simple. There are several thousand good buddies using the same simplex frequencies in a twenty acre area. Intermod, is the order of the day.

And this may sound old fashioned, but take lots of cash. Flea market hams don't accept checks. I also recommend using a backpack or a fanny pack to carry small parts and info fliers. This keeps your hands free to meet new friends and to test out all of those non-working knobs, buttons, switches, keyboards and parts trays.

If you expect to purchase a large radio or other heavy piece of equipment take a luggage dolly. It could be a long way from the flea market to your car.

Even if you don't have money to spend you won't leave empty handed. You'll have the memories of attending one of the greatest hamfests in the world. 73's. NT9J.

Repeater users can be evicted by the trustee!

A new interpretation of an old FCC rule may force repeater licensees to evict unwanted users. **FCC SAYS REPEATER TRUSTEES CAN BAN USERS!** The Federal Communications Commission has told the attorney for a southern California radio club that the license holder to its repeater can kick any ham off the system that he deems unfit to use the machine. In doing so, the FCC seems have set the stage for a total re-evaluation of the way every repeater in the nation is operated.

The issue of what rights a repeater licensee has over the control of his repeater came into sharp focus on February the 1st. This, in a letter of interpretation of Section 97.205, subpart E of the FCC Amateur Service rules. Section 97.205 E says in part -- and we quote -- "Limiting the use of a repeater to only certain user stations is permissible." That language has been on the books for years. Some repeater licensees are probably not aware the rule exists, much less understand the power it gives them. Moreover, until now the FCC has given repeater licensees wide latitude in its interpretation.

But a far narrower reading has now come as the result of a request for clarification sought by Attorney Sidney Radus, N6OMS of Orange, California. Radus is the attorney representing the Claremont Amateur Repeater Association in its fight against

some unwanted users of its repeaters.

In preparation of a civil complaint against one user, Radus wrote to the FCC's Private Radio Bureau to find out exactly where his client stood in regard to Part 97.205 E. His inquiry was answered by Personal Radio Branch Chief John B. Johnston W3BE. Johnston is well versed in Part 97 regulatory matters in that he was the guiding hand that crafted the latest version.

After quoting section 97.205 E, Johnston added the rule applies whether a repeater is coordinated as an "open" or "closed" repeater. In fact, Johnston says -- and again we quote -- "Rule 97.205 E without qualification, permits the individual responsible for proper operation of a repeater to limit the use of a repeater to certain user stations." -- end quote.

As previously reported, the legal action taken was to obtain a restraining order against Tim W. Seawolf of Quail Valley, California. It's now been learned that the Johnston letter was accepted by the civil court as evidence in the case.

But looked at on a much broader scale, this new interpretation of Section 97.205 E is the really important story. This, because it holds the potential of impacting on the way that every ham who uses a repeater to make contacts operates on the air.

The FCC now seems to be saying that in effect, there is really no difference between an open or closed repeater. Rather that all repeaters are essentially

closed and that the ability anyone of us to operate through one is at the will and the whim of the person that holds the license to a given machine. In fact, the Johnston letter goes even further than that. It just about mandates that repeater licensees act to ban anyone who in any way may cause the repeaters operation to violate any FCC part 97 rule.

New medical terms

ARTERY: the study of paintings

BACTERIA: rear entrance to the cafeteria.

BOWEL: a letter like a, e, i, o, u

CAUTERIZE: made eye contact with her

DILATE: to live long

ENEMA: not a friend

FESTER: opposite of slower

GENITAL: other than Jewish

IMPOTENT: worthy of attention

MORBID: a higher offer.

NITRATES: cheaper than day rates

NODE: was aware of

OUTPATIENT: person who fainted

POSTOPERATIVE: mail carrier.

SEIZURE: Roman emperor

TABLET: a small table

TUMOR: an additional two

URINE: opposite of "Yer out"

VARICOSE: nearby.

X-RAY: Adults only

ATV covers Klan again

For the second time in six months the Klu Klux Klan held membership rallies in the Hoosier state. There were two rallies held during the day on Saturday April 2nd. The first rally was held in Crawfordsville. Then the caravan of klan members moved to the west steps of the Indiana statehouse for a late afternoon rally.

Local and state law enforcement authorities again called on the amateur radio community to provide ATV coverage for security.

Over a dozen hams took part in providing live video feeds of the statehouse rally. Six cameras were used. All video was sent to the local and state police emergency operations centers near the statehouse.

According to Indianapolis Mayor Stephen Goldsmith, the network of amateur TV cameras gave police and medical personnel the ability to better observe the crowd and monitor any medical problems that might develop.

A separate camera and transmitter was used in the police helicopter that flew over the anti-klan rallies around the city. As a result, the authorities said they were able to maintain better crowd control and keep all demonstrations peaceful. Only two arrests were made.

Plans are now being made to use the ATV amateurs in future citywide events.

Are you starting to think about Field Day?



J. R. (KB9HSE) has an opportunity to talk to his son as a regular contact during the '93 Field Day contest.



Ed Williams of Whiteland operates his "50 ton rotor" to aim our beams at over 100 ft in the air.

Plans are already being made for the 1994 Field Day exercises at Camp Atterbury! J. R. Osborne KB9HSE will again be the Field Day Chairman. Mid-State will enter the contest this year as 2A Indiana. As plans develop we will need help from a lot of members. Don't be shy! You can help out by volunteering for one of the many jobs. We will be needing lots of OPERATORS!

New Mid-State members

We have added 13 new members to Mid-State during the month of March. Please welcome:

Ronald Long N9QVM (T) Indianapolis, Paul Bartlett (G) N9TLF Columbus
Robert Walden N9SLL (T) Columbus, Perry Doty N9IZM (A) Indianapolis
Donald Ping KF9TT (A) Camby, Randy Lievertz N9MJB (T) Indianapolis
David Vail KF9TH (A) Carmel, Harold Keen M9MOW (T) Indianapolis
Jay Chrisman KA9MUU (A) Greenwood, Russ Chatten N9QBX (T)
Mooresville, Bruce McClary KA9RWW (T) Indianapolis, William Clowes
KF9UJ (A) Indianapolis, and Josh Wilson NO CALL (T) Mooresville.

Some of these members signed up at the club table at the Indianapolis hamfest. Others signed up at our March meeting during the VE test session. Our total membership at press time was 125.

FCC Spectrum Auction.

A threat to amateur radio?

The Federal Communications Commission began the complex process last week of finalizing its rules for auctioning off spectrum for personal communication services (PCS) and other mobile services.

Apparently seeking to maximize the revenue the government will accrue from the process, the agency set up a system of "multiple round bidding." Under that system, several PCS licenses will be auctioned off simultaneously and the initial bids will be made public, allowing competitors to increase their bids.

The agency says the move is designed to allow companies to bid on groups of licenses within a larger geographic region and to permit them to make strategic decisions on how much they will pay based on their aspirations for a certain region.

In addition, winning bidders will be able to trade their licenses with one another.

The FCC also voted to require most current microwave users of the affected portion of the 2-GHz band to vacate within five years. The agency had previously said that PCS licensees will have to finance the move of public safety agencies.

The FCC's decisions last week left many questions unanswered. Major details must still be worked

out, including who will conduct the auctions and how the bids will be accepted. More importantly, the agency must decide how the multiple bidding procedure will apply to spectrum blocks and geographic regions. Will bidders, for example, be required to bid on multiple spectrum blocks at the same time or the same block for several geographic regions?

Many questions will not be answered until the FCC finishes its reconsideration of the PCS rules, which were approved last fall. The commission is expected to wait to finalize its auction rules until after that process is completed, which is likely to be next month. Some say there could be major changes in the PCS rules, based on the flood of petitions from companies and trade groups.

As expected, the FCC did move to establish preferences for small companies and businesses owned by women and minorities. A small business will be defined as having a net worth of \$6 million or less. Rural telephone companies with fewer than 50,000 access lines also will be given preference, though the commission did not elaborate on what that meant.

Auction dates have not been formally set, although officials continue to deny rumors that it could be delayed well into next year.

The government has estimated that \$10 billion could be raised in spectrum auctions. However, outside observers say they doubt the amount will even be close to that. MCI's announcement that it will buy a stake in Nextel to offer national wireless services has cast

a new light on that figure and could reduce the amount other companies will be willing to pay for PCS licenses, they say.

Another potential threat comes from Capitol Hill, which created the auction as a way to reduce the deficit. A growing movement on Capitol Hill to allow broadcasters to use their spectrum blocks for non-broadcast services could upset the apple cart, according to some critics.

from March 94 Telephony. Thanks to Eric KB9BGGS



C U P S etc.

Just in time for Mother's Day! A new supply of "Official" Mid-state ARC coffee mugs. Actually, it's the same old supply, but I thought everyone might want to pick one of these babies up for Dear Old Mom.

The price is still an incredibly low sum of \$5.50. Just think how nice a set of six ceramic mugs would look hanging on the coffee mug tree in your kitchen. It's a sure sign of spring having one of these classic souvenirs around the house..

Jack Parker, NT9J, your friendly club cup representative, will have cups available at the April meeting. All proceeds benefit the MARC tower and operating fund.

—Foot note to new club members: Don't be the only ham in the meeting room without a MARC cup!

Hams aboard a Circus Train

In July of 1963 Milwaukee became host to the spectacular circus parade, authentic in every detail. For the first years of the parade, the museum's growing collection of restored circus wagons was taken from Baraboo to Milwaukee and back by flat-bed semi-trailer trucks. Then something even more special happened: The Great Circus Train took on the transportation task. That was when the museum's director was asked about having Amateur Radio on board for communications. So it was that, in 1965, Don Evenson, K9JYX, became the first radio amateur to operate from the circus train.

In the 1960s, converted tube-type equipment was the only equipment available for two-meter FM. The famed durability of Motorola gear was proven beyond doubt when a can of "barley pop" was accidentally dumped into a Motorola Compa-Station. Don just picked up the radio, poured the beer out, and the rig kept right on working without even a burp!

Pulled by two bright and shiny diesel engines, the train is a rocking and rolling, spectacularly colorful advertisement for the CWM and for the parade. Composed of 19 flat cars, two stock cars, five passenger cars, and a colorful special caboose, radio amateurs from Milwaukee County ARES supply communications equipment and staff so that those on the train have ways to send reports and let everyone know when to expect the train to arrive at their location. It's ham radio doing the job, using several wide area repeaters.

Huge crowds are all along the 164 mile route during the train's two-day journey, mostly in the larger cities. But, it's not unusual to see people perched in just about every imaginable location: atop silos, haystacks, buildings, gravel piles, and even on railroad semaphore posts! The cheers from the crowds are clearly audible to the crowd on the train, and those cheers are happily returned by the riders on the train, including such notables as Wisconsin Governor Tommy Thompson who, for his part of the ride, gets caught up in the excitement and fun just like every other rider aboard this train of trains.



The quarters are crowded and there is plenty to do for ham radio operators on the Great Circus Train.

Eight antennas, four on each side of the car's roof, are installed on bars which are bolted to the roof. Finding a ladder to get to the top of the car sometimes takes longer than does mounting the antennas; the mounting takes about ten minutes. The radio crew is ready for the next two days of traveling through the green Wisconsin countryside, doing what most hams do best: communicat-

ing. The communications station is a busy place, so the operators don't see much scenery.

Electricity for the train's lights, PA system, kitchen, and other needs is supplied by a large diesel generator in a circus wagon on the first flat car behind the passenger coaches. Power for the mobile telephones and ham radio gear comes from storage batteries, which are trickle-charged by power from the generator. If for some reason the generator stops, the radio show goes on.

Since the possibility always exists for radio and telephone equipment failure, a chase vehicle "tags" the train, using county roads that keep the vehicle as close as possible to the train. The vehicle has a driver and a radio operator who keeps in contact with the crew on board the train. If problems arise, the chase vehicle waits for the train at the next scheduled stop where adjustments, repairs, or replacements are made.

The train is always crowded, and 1993 brought the biggest passenger load ever. Nonetheless, the Milwaukee ARES crew are hoping it will be possible to operate an HF special event station from the train in 1994. If this should come to pass, watch the ham publications for an announcement.

The Circus World Museum is housed in the original Ringling Brothers Circus winter quarters in Baraboo, Wisconsin. The museum is open all year, and during the vacation months from mid-May until mid-September, features live, first-rate circus in a show under the big top!

from the April APRIL Field Forum.

Post Elmering

Getting the new amateur on the air

By George Wilson W1OLP

The amateur community does a pretty good job of teaching newcomers and helping them get licenses. True, license examinations are not what they used to be. Most of my contemporaries were driven to get the General Class licenses (the lowest grade in those days) and went on the air immediately when their license arrived. In fact, some of us had tasted the fun by doing a little bootlegging (getting on the air without a license) or operating a friend's station before the license arrived. Bootlegging was very limited, however. Those were the days when hams would turn in their own mothers for transgressing the Part 97 rules.

Today, on the other hand, many of our new licensees are slow to get on the air, and some never do! Young people's programs given in schools have a particularly poor yield of active amateurs. This is understandable because of the lack of parental involvement and, perhaps more importantly, the cost of equipment. Parents are all too aware of the limited interest span of their offspring.

Adults are another case entirely. Equipment cost is not generally a problem. This is particularly true if they are members of a club where second-hand equipment is often readily available. Their particular problem seems to be their lack of hands-on experience. In the days before single sideband (SSB),

most of us built much of our equipment, and antennas were simple wire affairs that were erected long before our licenses were issued. Today's newcomers are on a rapid learning curve with very little exposure to what it takes to get on the air and how to operate an amateur station. They are afraid of embarrassing themselves or, worse yet, inadvertently doing something illegal.

Many of us remember establishing the VHF band limits using Lecher wires (a most inaccurate method by today's standards.) Locally, the band edges were marked by where you heard the highest and lowest frequency signals. Today, our equipment allows precise frequency control, and with one of the many band allocation charts available, even the beginner need have little fear of out-of-band operation. However, this very precision can be very intimidating.

It appears that we amateurs are dropping the ball when the newcomer gets his license. Our helpers/Elmers are doing the job quite well, but there is a definite need for "Post Elmers"—those who help get a newcomer comfortably on the air.

The Barnstable Amateur Radio Club (BARC) has pioneered a post-Elmering activity under the guidance of club president Jim Kessler, KQ3S. He recently contacted 20 newly-licensed amateurs and invited them to a meeting prior to the scheduled November meeting, and more than 15 attended. As follow-up to this initial meeting, many Cape Cod amateurs have volunteered to be Post-Elmers. They visit with newcomers and

help them to decide what to purchase for equipment, instruct them in the use of the equipment, and help in installing the equipment and the associated antennas and grounding systems. These are all formidable steps for a newcomer acting alone.

Perhaps most importantly, Post-Elmers get the station on the air, and demonstrate what it will do and how to use it properly. One special trick is to demonstrate what can be done with the privileges offered by the next higher grade of license. In one typical case, a newly fired-up Technician's station was used by his Post-Elmer to make a phone contact with an amateur in Texas. The owner of the station was duly impressed, and hopefully, this will stimulate a upgrade.

The Post-Elmering approach used by BARC is strongly recommended to other clubs. We were pleasantly surprised at how many of our members are ready and willing to help out the newcomers.

from the ARRL Field Forum.

DO YOU RECOGNIZE THIS ACTIVE CLUB MEMBER?



He attends almost all club meetings. Does he look familiar?

The mystery club member for last month was Joe Rogers KF9LQ



*** An answering machine is great. You leave home, stay away all day, and when you come home, the machine lets you know that nobody has been thinking of you.

*** Most new bathing suits look like they were turned out by one silkworm on a coffee break.

*** The key to being beautiful is to hang around with real ugly people.

*** A Beverly Hills poodle had an adorable doghouse near the pool. A visitor asked, "How do you keep it so clean?" The owner of the pet answered, "We have a Mexican Chihuahua come in Monday and Friday."

*** Two men are discussing money, when one of them says, "I always manage to put some money away. I never pay my old debts." The other man says, "What about the new ones?" The answer: "I let them get old!"

*** A businessman hires a young Chinese fellow to be in charge of supplies for the company. At the end of a week, however, all of the section hands complain about a shortage of material.

The businessman goes to the warehouse to find out why things aren't moving. As he walks in, the young Chinese jumps up from behind a crate and yells, "Supplies!!"

*** "Can you telephone from an airplane?" "Sure, anybody can tell a phone from an airplane!"

*** Being punctual is no fun. There's nobody there to appreciate it.

*** A minister was at a banquet when a careless waiter dropped a steaming-hot plate of pasta into his lap. The minister looked around the room with agony in his face and finally whispered, "Would some layman kindly say something appropriate?"

*** It costs more nowadays to amuse a kid than it used to cost to educate his father.

*** It was a very small town. The Zipcode was a fraction.

*** Three men were turned down for seats at the Olympics. One picked up a manhole cover and walked up to the guard and said, "discus tosser." He was allowed in.

The second appeared with a long piece of pipe and said, "pole vaulter." and was let in.

The third found some barbed wire and entered, saying, "fencing."

*** I love sports. Where else do you get a chance to boo a whole slew of millionaires to their faces?

*** If the Founding Fathers thought taxation without representation was bad, what would they think it is today *with* representation?

*** A teenager can tell how good his stereo is by how many times the neighbors call the police.

*** If you call 911 in Beverly Hills you have to tell them who recommended you.

*** Every time this young man brought a young lady home to meet his mother, the mother turned up her nose. She never liked any of the girls he was interested in. One day he brought home a girl who looked like his mother, sounded like his mother, and even walked like his mother. It did him no good. His father didn't like her!

*** He bought his wife an electric toaster. Then he bought her an electric mixer. Then he bought her an electric typewriter. Now he's working his way up to a chair.



WORLDWIDE
I WOULDN'T DUMP THAT JUST YET -- HAROLD'S
DOWN THERE LOOKING FOR A GOOD GROUND

BENS WEATHER TIPS

By Ben Woods Channel 8 TV

It is not unusual at all for the season according to the calendar and the weather not to match. But perhaps it's never more frustrating than in the spring. After the winter we've had, for it to be "officially" spring and snowing can seemingly defy logic. But for the Midwestern U.S. and Indiana, April and warmth are not necessarily synonymous with each other.

A scary thought is that the same can sometimes be said about the month of May. In Indianapolis, for example, we had almost an inch (0.9) on May 8th, 1923 and snowflakes have fallen (but not stuck) as late as May 20th, 1984. To ward off any depression I may have caused, take comfort in the fact that in a normal spring the weather turns warm and stays warm by the start of May.

The weather highlight of March is that we didn't really have any. After the snowiest February ever in South Bend, March snowfall in South Bend was the lowest on record. Also, Indianapolis had considerably below normal precipitation. Only 0.92 inches of precipitation fell (2.87" drier than normal). Such an arid month is not a big deal as long as the "spring rains" finally do come in April and May for the farmers.

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However, the long-range outlook for April by the National Weather Service is calling for slightly below normal precipitation for the Midwest (including Indiana) and below normal temperatures for most of the eastern United States.

Keep in mind that forecasts at this range are only about 55 percent accurate.

Ben Woods WISH-TV

MARC

Mid-State Amateur Radio Club

Post Office Box 836 Franklin, In. 46131

Club Repeater: 146.835

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President: Roy Barnes N9PFZ

V. President: Randy Shake KC9LC

Secretary: Marilyn Patton N9TUK

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Editor: Mac McCarty NV9K

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ARES: Vernon Gill N9QBO

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